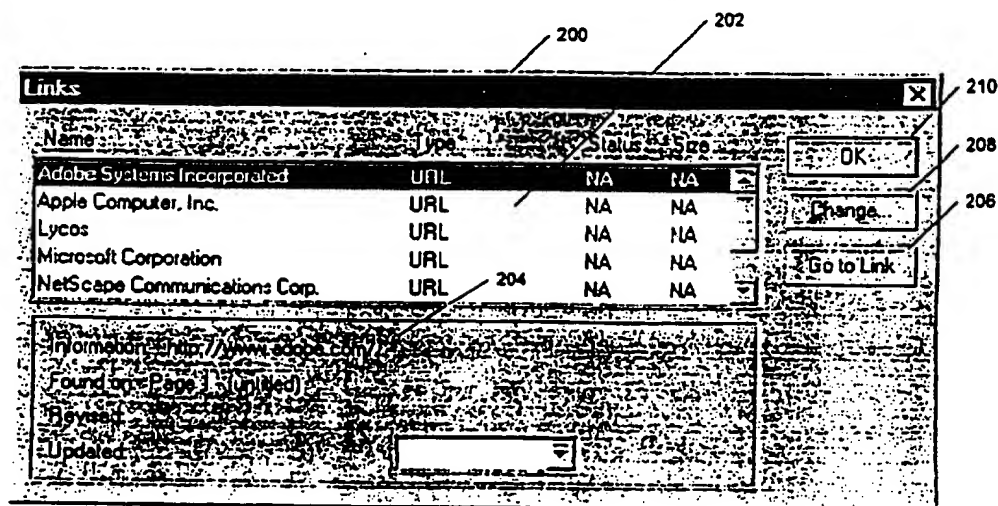




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(54) Title: DOCUMENT INTERNET URL MANAGEMENT



(57) Abstract

A method and an apparatus (200) for using a propriety URL ("PURL") comprising three components: a URL address; a descriptive name for the URL; and a property that defines whether the URL represents an image map. The invention maintains an embedded list of PURLs within an application work document, such as a word processing document, presentations graphics document, etc. PURLs can be stored within a document without being used, letting a user work from a predefined list (202) before actual URL hyperlinks have been created within the document. A PURL can be defined by manually entering a URL in a PURL List Dialog (200), or by dragging a URL from a web browser and dropping it on a document. The PURL List Dialog (200) shows a list of all URLs that are stored in the document and provides editing features (208).

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DOCUMENT INTERNET URL MANAGEMENT

RELATED APPLICATION

This application is related to co-pending U.S. Patent Application Serial No. _____, entitled INTERNET HYPERLINK DRAG AND DROP, assigned to the assignee of the
5 present invention, filed on the same date as this application.

BACKGROUND OF THE INVENTION

1. *Field of the Invention*

This invention relates to computer software, particularly for use in wide area networks, including the Internet.

10 2. *Description of Related Art*

The Internet worldwide web is an international electronic network comprising a vast number of interconnected electronic sites using common communication protocols. The architecture of the worldwide web (simply, "web") includes the use of web "pages" at a site to provide text, graphical, audio, and video information to users accessing that site.
15 Selectable information is typically indicated by means of text or graphical images (e.g., icons or bitmapped images) which are associated with remote address pointers known as Universal Resource Locators (URL's), typically having the following form: "http://www.adobe.com".

Selection of text, an icon, or an image having a URL causes the user's program to access
20 the web page designated by the URL. In addition, objects (e.g., data files, images, video clips, etc.) within a web page can also be assigned URL's, such that selection of the associated text, icon, or image causes the object to be transferred (downloaded) to the user's computer for playback or storage.

Modern "electronic documents" comprise text, format and control codes, and embedded objects, such as figures (*e.g.*, vector or bitmapped graphics images), audio clips, and/or video clips. In addition, some documents (for example, documents produced in WordPerfect 6.1 from Corel Corporation of Ontario, Canada) may include "hypertext" or "hyperlinks". Hyperlinks are areas in a document containing pointer information that a user can select (*e.g.*, by "clicking" with a pointer device, such as a mouse), causing the current application (*e.g.*, wordprocessor, spreadsheet, *etc.*) to "jump" to a new document or a different location in the current document.

The present invention is directed at extending the concept of hyperlinks to include URL's, and includes a convenient, easy to use method of managing URL hyperlinks.

SUMMARY OF THE INVENTION

The present invention makes use of a Propertyed URL ("PURL") comprising three components: a standard URL address; a descriptive name for the URL; and a property that defines whether the standard URL represents an image map (a graphical figure
5 having one or more standard URL "hot spots" associated with it).

The present invention maintains an embedded list of PURLs within an application work document, such as a word processing document, presentation graphics document, spreadsheet, *etc.* PURLs can be stored within a document without being used, letting a user work from a predefined list before actual URL hyperlinks have been created within
10 the document in accordance with the invention described in the co-pending patent application entitled INTERNET HYPERLINK DRAG AND DROP.

A PURL can be defined by manually entering a URL in a PURL List Dialog, or by dragging a URL from a web browser and dropping it on a document. In the preferred embodiment, the user can also drag and drop several URLs to make several entries at
15 once. When a URL hyperlink is defined by drag and drop, the text used to signify the corresponding URL in the browser is used as the default descriptive name of the PURL entry. A user may also define a Base URL for the whole document. With a Base URL defined, the user is able to use a relative URL address in URL hyperlinks, saving editing time.

20 The invention also includes a management facility to help keep track of PURLs that are stored within a document, as well as the URL hyperlinks that are defined. The PURL List Dialog shows a list of all the URLs that are stored in the document and provides convenient editing features.

The details of the preferred embodiment of the present invention are set forth in the
25 accompanying drawings and the description below. Once the details of the invention are

known, numerous additional innovations and changes will become obvious to one skilled in the art.

BRIEF DESCRIPTION OF THE DRAWINGS

FIGURE 1 is a graphical depiction of a PURL List Dialog in accordance with the present invention.

5 FIGURE 2 is a graphical depiction of a PURL Links Dialog in accordance with the present invention.

FIGURE 3 is a flowchart showing a preferred method of creating a URL hyperlink by dragging and dropping.

FIGURE 4 is a flowchart showing a preferred method of creating a PURL entry by dragging and dropping.

10 Like reference numbers and designations in the various drawings indicate like elements.

DETAILED DESCRIPTION OF THE INVENTION

Throughout this description, the preferred embodiment and examples shown should be considered as exemplars, rather than as limitations on the present invention.

5 The present invention uses document hyperlinks that allow a user to jump to another object or page within the same document or in another document all together—either on a local storage device, or on a remote storage device over a local area network, private wide area network, or the Internet. Hyperlinks that access a document from the Internet are called URL hyperlinks. A description of how to create URL hyperlinks is set forth in the co-pending patent application entitled INTERNET HYPERLINK DRAG AND
10 DROP.

The present invention also makes use of a Propertied URL ("PURL") comprising three components: a standard URL address; a descriptive name for the URL; and a property that defines whether the standard URL represents an image map (a graphical figure having one or more standard URL "hot spots" associated with it).

15 FIGURE 1 is a graphical depiction of a PURL List Dialog 100 in accordance with the present invention. The PURL List Dialog 100 may be invoked in any desired manner (e.g., via menu, hot key, toolbar button, etc.).

In the PURL List Dialog 100, PURLs are preferably presented in a list 102, designated by their descriptive name for ease of reference. Clicking on one of the PURL names will
20 show the actual URL address down below the listing in an information field 104 (shown in dotted outline). If a PURL is not currently defined in the document as a URL hyperlink, an asterisk will display next to it in the list 102, as shown. The number of PURL entries that may be stored in a document is implementation dependent, but is preferably at least several thousand.

A PURL can be manually added or edited by clicking on the Edit button 106. An edit box (not shown) asking for the three components of the PURL will be displayed to the user. In the preferred embodiment, the Base URL (described below) is shown in the edit dialog for reference. A user can select an unused PURL and remove it from the document by clicking the Remove Unused button 108. In the preferred embodiment, PURLs that are being used as URL hyperlinks cannot be removed without first deleting the hyperlinks from the body of the document. The List Dialog 100 may be dismissed by clicking the OK button 110.

FIGURE 2 is a graphical depiction of a PURL Links Dialog 200 in accordance with the present invention. The PURL Links Dialog 200 includes a list box 202 that lists all of the objects linked by hyperlinks within the document, including graphics, videos, audio, and URLs, and may be invoked in any desired manner (*e.g.*, via menu, hot key, toolbar button, *etc.*). In the preferred embodiment, linked items are listed by descriptive names if available, and by filenames if there is no descriptive name. When the user clicks on a linked item in the list box 202, information about the link is displayed below the list box 202 in an information field 204. For URL hyperlinks, the displayed information includes the actual URL address and the location where the link is being used in the document, *e.g.*, "Page 5", "Slide 2", "Master 3", "Spreadsheet A1", *etc.* The user can click on the Go to Link button 206 to navigate to the place where the link is being used. An edit function can be invoked by the Change button 208. In the preferred embodiment, the Links Dialog 200 stays open until the user clicks the OK button 210.

In the preferred embodiment, after the user has authored a document and created URL hyperlinks, the user can change to a Preview mode to check the work. In this mode, the document is shown just as it would normally be viewed, except that if the user clicks on a defined URL hyperlink, a dialog will open displaying the associated PURL.

The user can also change to a Presentation mode to check or present a document. In this mode, clicking on a URL hyperlink will open a conventional web browser and take the

user to the location on the Internet web addressed by the URL. In the preferred embodiment, the web browser that is used is defined in a general preferences dialog. One web browser program that is compatible with the present invention is Netscape Navigator™ from Netscape Communications Corporation of Mountain View, California.

5 FIGURE 3 is a flowchart showing a preferred method of creating a PURL entry and associated URL hyperlink by dragging and dropping. While using a program implementing the invention, a user selects an object (*e.g.*, an icon or graphics figure) from a browser page having an associated URL (STEP 300). The URL, as provided by a browser program, is made available for dropping by the system software, in known fashion (STEP
10 302).

Using conventional techniques, the user "drags" (*e.g.*, by holding down a mouse button and moving the mouse) the selected object to a document page until the computer display cursor is positioned over an existing object, such as figure or text, or a blank area (STEP 304). For convenience, the cursor may be changed to indicate that a URL is being
15 dragged. The user then drops the dragged object (*e.g.*, by releasing the mouse button) (STEP 306).

At this point, the program implementing the invention queries the system software, in known fashion, for the type of data being dropped (in this case, a URL) (STEP 308). Having identified the data type as "URL", the URL is added to a list of PURL entries
20 embedded within the document (STEP 310), as more fully described below with respect to FIGURE 4. Bookmark lists are well-known, such as in the WordPerfect program mentioned above. In the preferred embodiment, a particular URL may be used more than once within a document, unlike conventional bookmarks.

The system software is also queried to determine the nature of the location on which a
25 URL has been dropped (STEP 312). If the underlying location contains a pre-existing object, such as a figure or text, a "bookmark" property of the underlying object is set to

the value of the dragged URL (STEP 314). Alternatively, an "invisible" bookmark code or bracketing pairs of codes are inserted within the document in close proximity to or surrounding the underlying object. The object is now hyperlinked to the URL. That is, selecting the URL hyperlinked object in the document (e.g., by clicking on it with a mouse) causes the underlying program to start an associated Internet-capable communications module or program, and use the URL address property of the object to retrieve the associated browser page (or an object therein).

If the underlying location does not contain a pre-existing object (i.e., the location is blank) (STEP 312), then, in the preferred embodiment, the object or the text of the object of the selected item in the browser page is also copied and imported into the document page as a figure or figure text (STEP 316). The imported object then becomes an object of the document page. A "bookmark" property of the new object is set to the value of the dragged URL (STEP 314).

In the preferred embodiment, figure-based hyperlinks are signified by an icon or "badge" that appears in the lower left corner of a figure's bounding box. Text-based hyperlinks preferably are signified by using different text attributes and colors that the user defines—for instance, the user may want each hyperlink to be colored blue and underlined.

A number of the steps described above can be performed in different order to accomplish the same function. For example, STEP 310 can be done after STEPS 312-316.

When URLs are dropped onto existing graphic figures, the resulting action is that of "applying" the URL hyperlink to the graphic. The advantage of this approach is that the drag-drop process allows the user to transfer the URL information to the target graphic without needing to separate the URL from its originating content. In other words, within the browser page, the URL exists as a property of an object of the browser page; transferring the URL to an object in the document page does not require the URL to be

separated visually from the browser page object. Thus, an object in the document page takes on the same property as the object in the browser page. The URL as an independent visual entity need not exist. In addition, there is no need to create some default display proxy (e.g., an independent icon) to represent the URL.

5 FIGURE 4 is a flowchart showing a preferred method of creating a PURL entry. When a URL hyperlink is defined by drag and drop, the captured URL (e.g., "http://www.adobe.com") is entered into a PURL list (STEP 400). If an optional automatic mode has been selected by the user (STEP 402), the text used to signify the corresponding URL in the browser is used as the default descriptive name of the PURL
10 entry (STEP 404). Otherwise, the user is prompted for a descriptive name (e.g., "ADOBE HOME PAGE") for the PURL entry (STEP 406). Alternatively, the text used to signify the corresponding URL in the browser is used as the default descriptive name, but is displayed in a dialog edit box to allow immediate editing by the user.

15 In any case, the user is also prompted as to whether the captured URL represents an image map (a graphical figure having one or more standard URL "hot spots" associated with it) (STEP 406). This information is needed to help a browser resolve a URL and properly retrieve a URL-designated object. All of the information is then stored in the PURL list (STEP 410).

20 As above, a number of the steps can be performed in different order to accomplish the same function. For example, STEP 400 can be postponed until STEP 410.

A user may also define a Base URL for the whole document. With a Base URL defined, the user is able to use a relative URL address in URL hyperlinks, saving editing time. For example, a user may define the Base URL with a URL of "http://www.adobe.com". A relative URL may then be defined with a URL of, for example:

25 `"./cgi-bin/imagemap/imagined/home.map"`

where the "/" symbol indicates that the Base URL is to be concatenated with the relative URL before actual use. That is, the fully resolved URL will be:

"http://www.adobe.com/cgi-bin/imagemap/imagene/home.map"

Thereafter, if the base URL changes (e.g., to "http://www.adobe.corp.com"), the relative
5 URLs need not be changed.

Implementation

The invention may be implemented in hardware or software, or a combination of both. However, preferably, the invention is implemented in computer programs executing on programmable computers each comprising a processor, a data storage system (including
10 volatile and non-volatile memory and/or storage elements), at least one input device, and at least one output device. Program code is applied to input data to perform the functions described above and generate output information. The output information is applied to one or more output devices, in known fashion.

Each program is preferably implemented in a high level procedural or object oriented
15 programming language to communicate with a computer system. However, the programs can be implemented in assembly or machine language, if desired. In any case, the language may be a compiled or interpreted language.

Each such computer program is preferably stored on a storage media or device (e.g., ROM or magnetic diskette) readable by a general or special purpose programmable
20 computer, for configuring and operating the computer when the storage media or device is read by the computer to perform the procedures described herein. The inventive system may also be considered to be implemented as a computer-readable storage medium, configured with a computer program, where the storage medium so configured causes a computer to operate in a specific and predefined manner to perform the functions
25 described herein.

A number of embodiments of the present invention have been described. Nevertheless, it will be understood that various modifications may be made without departing from the spirit and scope of the invention. Accordingly, it is to be understood that the invention is not to be limited by the specific illustrated embodiment, but only by the scope of the
5 appended claims.

CLAIMS

What is claimed is:

- 1 1. A method for creating and using a proprieted universal resource locator ("PURL")
2 in an electronic document, comprising the steps of:
3 (a) receiving a universal resource locator ("URL") address defining the location
4 of an object;
5 (b) entering the URL address into a list associated with the document;
6 (c) associating in the list a descriptive name for the URL address;
7 (d) defining in the list a property for the URL address indicating whether the URL
8 address represents an image map.
- 1 2. The method of claim 1, further including the step of automatically associating text
2 used to signify the corresponding URL address in a browser program as the
3 descriptive name.
- 1 3. The method of claim 1, further including the step of prompting a user for each
2 descriptive name.
- 1 4. The method of claim 1, further including the steps of:
2 (a) defining a base URL for the document;
3 (b) omitting the base URL from each URL address entered into the list;
4 (c) forming a fully resolved URL address by concatenating each URL address
5 from the list with the base URL.

- 1 5. A computer program, residing on a computer-readable medium, for creating and
2 using a proprieted universal resource locator ("PURL") in an electronic document,
3 comprising instructions for causing a computer to:
4 (a) receive a universal resource locator ("URL") address defining the location of
5 an object;
6 (b) enter the URL address into a list associated with the document;
7 (c) associate in the list a descriptive name for the URL address;
8 (d) define in the list a property for the URL address indicating whether the URL
9 address represents an image map.
- 1 6. The program of claim 1, further comprising instructions for causing a computer to
2 automatically associate text used to signify the corresponding URL address in a
3 browser program as the descriptive name.
- 1 7. The program of claim 1, further comprising instructions for causing a computer to
2 prompt a user for each descriptive name.
- 1 8. The program of claim 1, further comprising instructions for causing a computer to:
2 (a) define a base URL for the document;
3 (b) omit the base URL from each URL address entered into the list;
4 (c) form a fully resolved URL address by concatenating each URL address from
5 the list with the base URL.

- 1 9. An electronic document having a proprieted universal resource locator ("PURL")
- 2 list having at lease one entry for each PURL, including:
- 3 (a) at least one universal resource locator ("URL") address defining the location
- 4 of an object;
- 5 (b) a descriptive name associated with each URL address;
- 6 (c) a property associated with each URL address indicating whether such URL
- 7 address represents an image map.

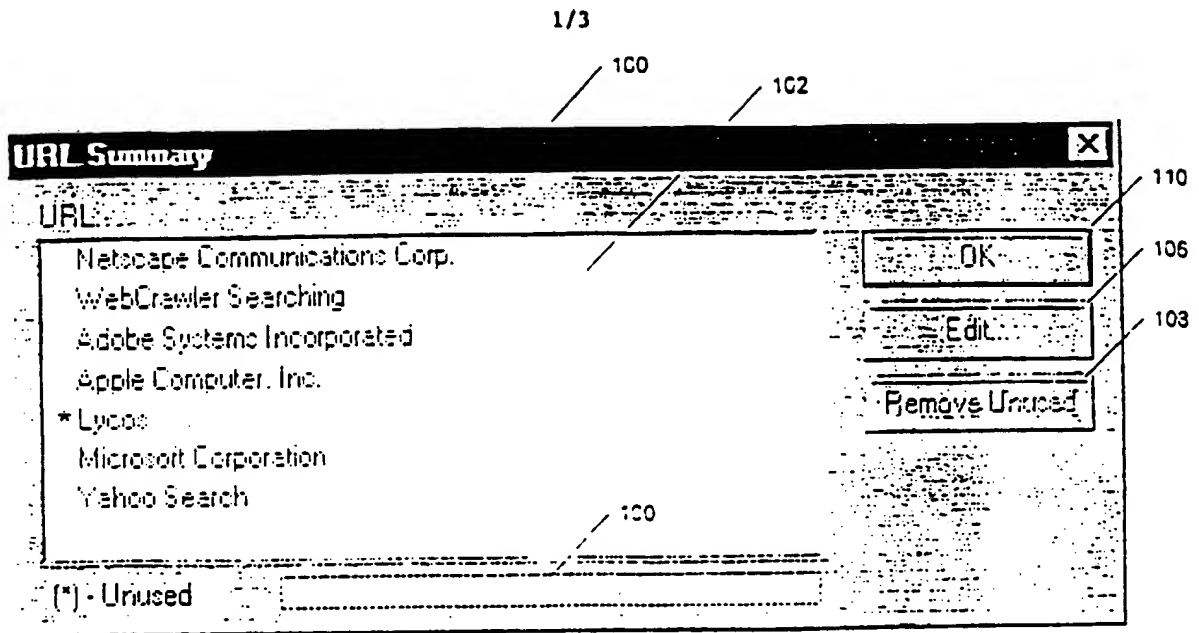


FIG. 1

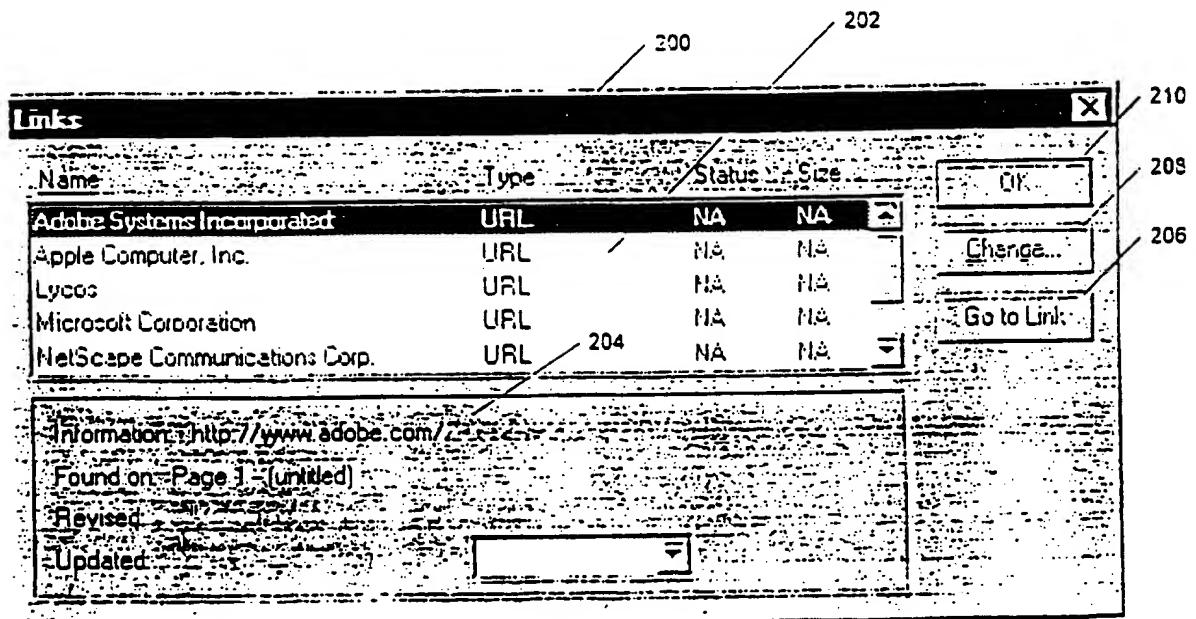


FIG. 2

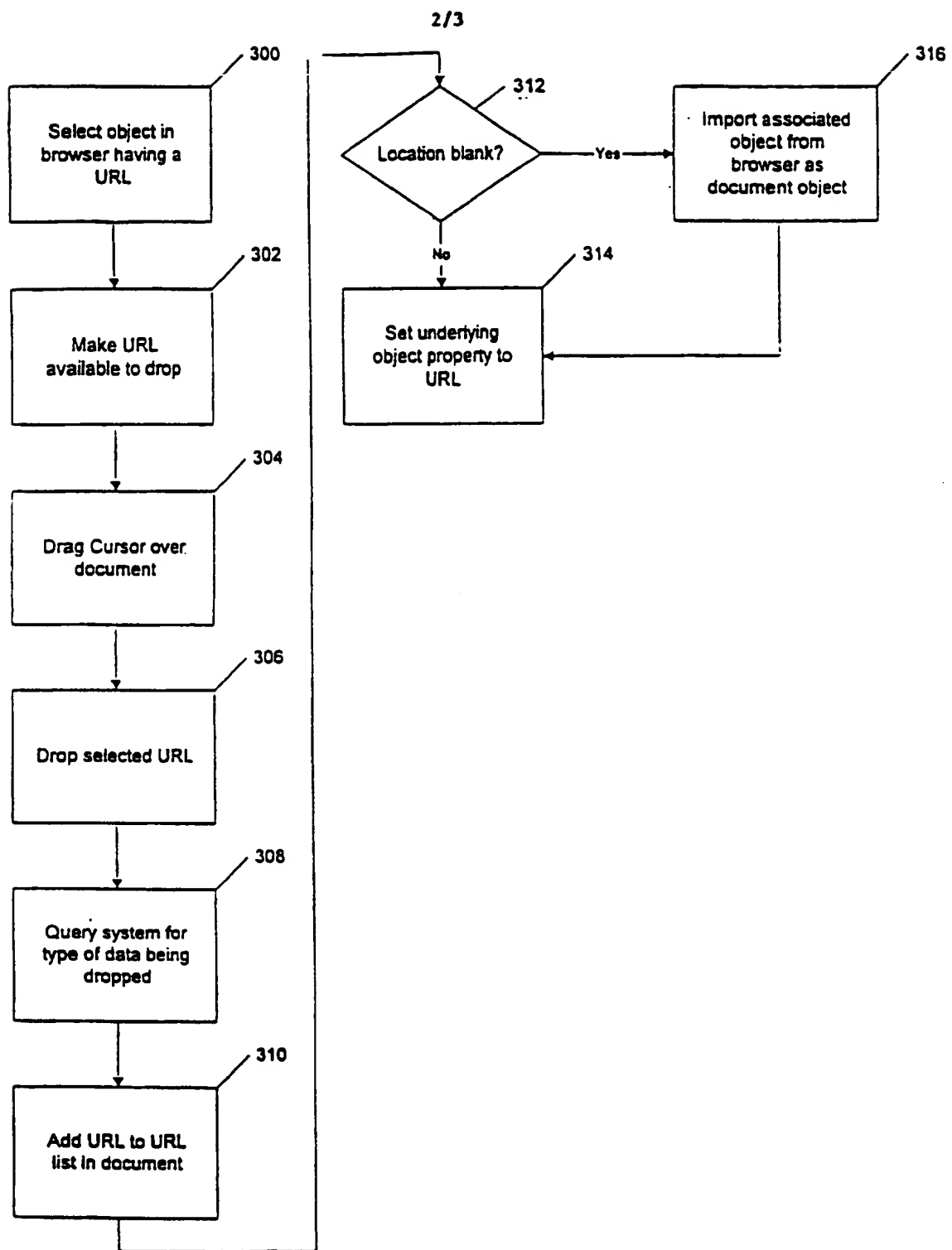


FIG. 3

3/3

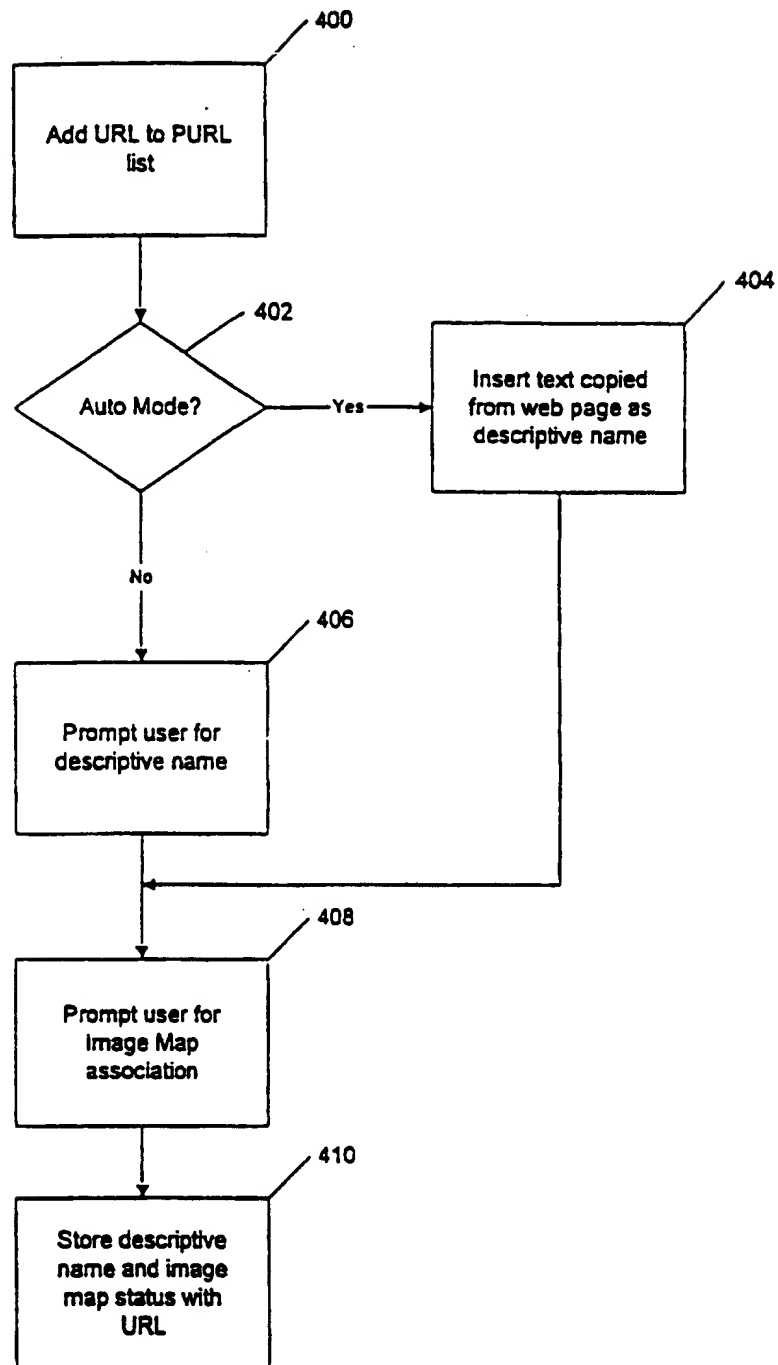


FIG. 4

INTERNATIONAL SEARCH REPORT

International application No.
PCT/US97/07881

A. CLASSIFICATION OF SUBJECT MATTER

IPC(6) : G06F 12/00

US CL : 395/200, 800

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

U.S. : 395/200, 800

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)
APS, DIALOG

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A,P	US 5,615,325 A (PEDEN) 25 March 1997, col. 9, Table 5.	1-9
A	HAWN, MATHEW. Cyberfinder: track internet URLs via the finder. Macworld. March 1996, v13. n3. p82 (1)	1-9

☐ Further documents are listed in the continuation of Box C. ☐ See patent family annex.

* Special categories of cited documents:	* T Inter document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
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